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	<i>Micropodidæ.</i>	<i>Dendrochelidonidæ.</i>
Rostral portion of cranium	broad;	moderate.
Nasals	tri-radiate, overlapping frontals;	forked, abutting against frontals.
Ecto-ethmoid	wide;	narrow.
Vomer	anteriorly much expanded, T-shaped;	scarcely expanded.
Palatines	exteriorly notched;	unnotched.
Posterior margin of sternum	convex, imperforate;	slightly concave, with two foramina.
Tarsus	longer than first digit;	shorter than first digit.
Ulna	shorter than second metacarpal;	longer than second metacarpal.
Phalanges	except ultimate and penultimate, very short or obsolete;	not shortened.

The *Micropodidæ* apparently fall into two groups according to the development of their phalanges: *Micropodinæ*.—Number of phalanges 2, 3, 3, 3. *Chaturinæ*.—Number of phalanges 2, 3, 4, 5.

It is my earnest desire, at some future day, to treat of the Swifts in greater detail, but osteological material is very difficult to procure, and at present the matter must rest. I should be very grateful for any assistance in this respect, and in closing desire to express my thanks to Mr. Adams, Dr. Baur, Dr. Mearns, Dr. W. K. Parker, and Professor Newton for their kindness in providing me with the material on which this paper is based.

A SUMMARY OF OBSERVATIONS ON THE BIRDS OF THE GULF COAST OF FLORIDA.

BY W. E. D. SCOTT.

(Continued from p. 379.)

Phœnicopterus ruber. AMERICAN FLAMINGO.—This species was of regular though rare occurrence as a summer migrant as far north as Tampa Bay. The last birds killed there were four in number, all but one immature, in the year 1885, by Mr. Stuart of Tampa.

Of late years the birds have been so persistently persecuted in the region between Cape Romano and Cape Sable, and north from the former point to Sanibel Inlet, that they are now rare even at those points, though ten years ago resident there and not at all uncommon. Mr. Atkins while at Punta Rassa in 1885 and 1886 obtained several authentic records of the occurrence of the Flamingo in that region.

Some four years ago a party of 'plume hunters,' I am most credibly informed, killed in a single season, and during a single expedition after plumes a large number of these remarkable and beautifully colored birds. This was the main flock, and was well known to the spongers and other frequenters of the coast, in the region about Cape Romano. It seems, from information that I can gather, that the Flamingoes bred somewhere between Cape Romano and Cape Sable and south of that point quite recently, that is within five years, and a few may still find a nesting-ground on the Gulf Coast as numbers are seen every season, though the birds are not nearly as common as they once were and have become very shy from the repeated attacks upon them.

Ajaja ajaja. ROSEATE SPOONBILL.—The record in regard to the species in question is even more shocking than that of the Flamingo. The Roseate Spoonbill was ten years ago an *abundant* bird on the Gulf Coast of Florida, as far north at least as the mouth of the Anclote River. The birds bred in enormous rookeries in the region about Cape Romano and to the south of that point. These rookeries have been described to me by men who helped to destroy them, as being frequently of many acres in extent and affording breeding ground to thousands of Roseate Spoonbills. The birds bred in January and were in the best plumage late in November and in December. They do not seem to have bred north of Charlotte Harbor, so far as I am able to ascertain, but immediately after the breeding season was finished, and as soon as the young were able to shift for themselves, there was a great dispersal of the birds to the northward, particularly along the coast, though they were common at points in the interior.

As late as the season of 1880 in March I found the birds in great numbers at all the points I visited south of the mouth of the Anclote River, and even north of that point they were of occasional occurrence. In Old Tampa Bay and at John's Pass in March of the year in question I saw the birds daily and once at least two hundred alighted on a sandbar where I was watching some Peale's Egrets (*Ardea rufescens*) and were so tame and unsuspicious that I approached within twenty feet before they flew, and the flight was only for a short distance when they again alighted.

All this is changed. I have spent the past four winters and two summers in Florida. My old hunting grounds have all been carefully re-traversed, some of them many times, and the Roseate Spoonbill is almost as great a stranger to me as to my fellow workers who live the year round in Massachusetts.

I have seen two near Tarpon in all the time referred to, about a dozen once on Old Tampa Bay, and during my trip to Charlotte Harbor in 1886

perhaps twenty in all. They were in every case so wild and frightened at the *sight* of a human being that the only way one could identify them was by the wonderful blush pink of their feathers in the light.

I am firmly convinced that this change is directly attributable to the demands of the feather market for the skins of these gorgeous birds, and feel sure that it is only the question of a few more seasons of 'plume hunters' when this species will be almost as mythical in Florida, as the traditional Phœnix

Guara alba. WHITE IBIS.—An abundant resident at most points on the Gulf Coast, but apparently preferring the fresh-water regions, especially in the breeding season, though I have frequently found them in rookeries, associated with various Herons, Cormorants, etc., where the water was brackish.

For many years the southeastern end of Lake Butler, near Tarpon Springs, has been a favorite breeding place for these birds, and I found vast numbers of them breeding there in April of the present year (1888). The nests were similar to those of the smaller Herons, which were also breeding abundantly at this point, except that they were lined with leaves and were more carefully built. Four eggs were generally the number of a full set, though once I found five in the same nest, and three were now and then the full number. The eggs were mostly laid, and had been incubated from a day or two to a week, when I visited the rookery on April 24, 1888.

These birds I found equally common at Panasoffkee Lake, the points visited on the Withlacooche River, and at many points in Charlotte Harbor and Tampa Bay.

Guara rubra. SCARLET IBIS.—Mr. Atkins of Key West writes me under date July 21, 1888, "I enclose the letter referring to the [Scarlet] Ibis. Mr. Hart is, to the best of my knowledge and belief, a truthful and reliable man and I have not the least doubt of what he writes in regard to the [Scarlet] Ibis."

The following I quote from this letter of Mr. T. E. Hart to Mr. Atkins, dated from Fort Ogden, Florida, May 13, 1888.

"I have done very well collecting plumes this season, but have not made a skin this year; have seen some fine Everglade Kites and Spoonbills and Rails, but was a long way from the boat and could not pack them; saw one Scarlet Ibis but did not shoot it. I was in a Heron rookery and saw it coming and thought it was a young White Ibis as its color was hid by the tops of the trees. I kept watching it coming along and when it got to an open place it hovered for a moment, and before I could shoot it, it dashed off at a right angle and I saw it no more. Joe saw one the same day. I could not have been mistaken in the bird. It was of the size and shape you wrote and was of a *dark* blood color. It was not more than sixty feet from me and was a perfect beauty."

I have perfect confidence in the above records and present them without hesitation as being of deep interest.

Plegadis autumnalis. GLOSSY IBIS.—Apparently rare on the Gulf

Coast. The only records I have are two birds, sex unknown, taken at Fort Meyers, on the Caloosahatchie River, in the spring of 1886. These two are in my collection and are numbered 5244 and 5245.

The local hunters in Hillsboro and Hernando Counties do not seem to have any knowledge of "Copper-colored Curlews," except such of the hunters as have travelled in the southern portion of the State.

Tantalus loculator. WOOD IBIS.—Common resident and frequents the cypress ponds, small streams, and rivers. It is rarely to be found on or close to salt water. Mr. Stuart of Tampa told me that several hundred of these birds bred in a rookery about eight miles from Tampa as recently as the spring of 1885. The breeding season was at its height about the last of March. This rookery has been broken up by local hunters and no birds breed there now, nor have I met with the species nesting in Florida.

Botaurus lentiginosus. AMERICAN BITTERN.—A rare summer resident but abundant at certain points in the autumn, winter, and spring. I have no record of the species breeding in Florida, but meet with the birds now and then throughout the warm months.

Botaurus exilis. LEAST BITTERN.—Common resident. Many breed both in the fresh and salt water marshes, though the former seem to be preferred.

The breeding season in the region about Tarpon Springs is in May and is completed, the young birds being able to fly, by the last of June, or first week in July.

Ardea occidentalis. GREAT WHITE HERON.—The regions between Cape Romano and Cape Sable and to the south of the latter point seem the localities preferred by this species, and here they are resident and breed. The breeding season is said to be in December and January. Mr. Atkins has kindly given me numerous records of their occurrence at Key West, and I have a note of one seen at the mouth of the Anclote River in April, 1887.

Ardea wuerdemanni. WÜRDEMANN'S HERON.—Mr. Stuart of Tampa has collected between Capes Romano and Sable some ten or more individuals of this species which I have personally seen. Most of these were in the colored phase and presented considerable individual variation, the details of which I am unable to place on record here, as I put off taking notes in this matter, being hurried at the time of my visit, and since then these valuable birds with many others have been destroyed by fire. Two of Mr. Stuart's birds were in the white phase, being pure white everywhere except on the last two or three inches of the their outer primaries, which were in color blue and marked much like the primary quills of *Ardea cærulea* in its white phase of plumage.

For the notes I have on the breeding of this species, I am indebted to Mr. Stuart, who kindly placed them at my disposal. Mr. Stuart started in the early part of November, 1886, for the region alluded to above, and found Würdemann's Heron breeding at that season. Some of the birds had eggs in their nests, and some had young almost ready to fly so that it is fair to presume that the birds begin to breed about October 1. The

birds were solitary in their nesting habits, and not at all common, and very shy. Mr. Stuart described the half-grown young to me as similar to those of *A. wardi* of a like age, but as he did not appreciate their value, he preserved no skins of them.

I wish to allude in this connection to a bird which I took near Tarpon Springs on July 31, 1886. With some hesitancy, I am obliged to consider the specimen in question, No. 5305 of my collection, an adult male in worn full plumage, as a hybrid between Würdemann's and Ward's Heron. It is of a considerably lighter and more smoke-colored blue than any Ward's Heron which I have. It has the decidedly white underparts streaked with black, and dusky gray and even rusty color characteristic of *wuerdemanni*. The crown patch from the forehead is streaked with bluish dusky. The plumes of the lower neck are almost pure white. There are so many characters of Würdemann's and Ward's Heron combined in this bird, that this seems the only reasonable category to place it in, at least till we have further light on the subject.

Ardea wardi. WARD'S HERON.—For recent remarks on this species I refer the reader to 'The Auk' of April, 1888, pp. 183-184.

I have before me a series of some thirty Ward's Herons in all stages from the fledgling birds taken from the nest to those in full adult breeding plumage. Of the latter, there are nineteen in number, and it is my purpose to give a slight summary of certain features said to characterize this species. *All* of these nineteen birds are in *very fine, unworn, adult plumage*, they having been taken at the beginning of the breeding season. Eleven of them, without any apparent correlation to sex, have the crown patch streaked and suffused with bluish black or bluish brown. Eight have the crown patch untinged and pure white. In the eleven that have the crown patch streaked, there is every degree of variation presented from an almost obscured crown patch to one only faintly streaked or suffused. This streaking or suffusion usually begins on the forehead and extends for a greater or less distance backwards till lost in the white of the extremity of the crown patch. A very considerable percentage have some of the long occipital plumes not wholly black, but blue or whitish. Of the nineteen birds in question only *three* have pure *black shoulder-knots*, and the other *sixteen* present every phase between shoulder-knots slightly streaked with white to those heavily and conspicuously striped with that color. There is also a very considerable individual variation in the relative amounts of white and black on the underparts of these nineteen birds. These points have been briefly noticed to show what a wide range of variation these birds have in the coloration of special parts, and as conflicting somewhat with recent descriptions.

Mr. Atkins has found the species not infrequently at Key West and has lately sent me a young bird of the year from that point, indicating its breeding at or near that island.

Ardea egretta. AMERICAN EGRET.—A rather common resident, though not nearly so abundant as in former years. Breeds, according to locality and range, from late in January till June and even July.

***Ardea candidissima*.** SNOWY HERON.—A common resident and once abundant, but it has been so systematically persecuted and destroyed that it is yearly becoming more rare. It breeds, according to locality, from early in March till late in June. It is particularly difficult to give accurate data as to the natural breeding time of this and others of the smaller Herons, for they are hunted just during the period of the full perfection of the plumes with such unremitting perseverance by the cruel plume hunters that scarcely a 'rookery,' no matter how small, escapes. So that the poor survivors of these massacres are constantly seeking new nesting grounds, and I have found Herons about Tarpon Springs and other points, breeding *late in August*, and this species, *A. cærulea*, and *A. tricolor ruficollis* had *fresh eggs* as late as the 15th of that month.

***Ardea rufescens*.** REDDISH EGRET.—Locally this bird is still common. The breeding season begins late in March in Old Tampa Bay, and is at its height by the middle of April. These birds, so far as I am aware, always breed in rookeries where the adjacent waters are salt, and I have never seen them frequent the fresh water ponds even to feed.

Mr. John W. Atkins, of Key West, tells me in a recent letter that the dark phase of plumage is the commoner of the two at that locality, though he constantly sees the white phase as well, and he believes the birds breed on the islands. For further remarks on this species the reader is referred to 'The Auk,' April, 1888, p. 184. I am indebted to a friend in this locality for the information that this species in its dark phase still breeds in numbers at rookeries at St. Martin's Keys, about forty-five miles north of Tarpon Springs, in the Gulf.

***Ardea tricolor ruficollis*.** LOUISIANA HERON.—The most common of all the Herons, frequenting both salt and fresh water. The breeding season begins about the same time of the year as the last.

***Ardea cærulea*.** LITTLE BLUE HERON.—Still a common species. Frequents both fresh and salt water, but there seems to be a preference for the former. Breeds in the vicinity of Tarpon Springs from early in April to late in August. See, in this connection, the remarks on the breeding of *A. candidissima*, which also refer to this species.

***Ardea virescens*.** GREEN HERON.—Common, but not so gregarious as the several preceding species. Resident and breeds, generally in the vicinity of fresh water ponds. Breeds from late in April to July, in the vicinity of Tarpon Springs.

***Nycticorax nycticorax nævius*.** BLACK-CROWNED NIGHT HERON.—Rather common resident, and some breed.

***Nycticorax violaceus*.** YELLOW-CROWNED NIGHT HERON.—Common locally. Breeds in May and June about Tarpon Springs.

[*To be continued.*]